AUDIONET

Phono-Module

User's Manual

Contents

1 Preface 4
1.1 Included 5
1.2 Transport 5

2 Installation 6
2.1 Installation MAP 1 / MAP V2 6
2.2 Installation SAM V2 / SAM G2 7
2.2.1 SAM V2 8
2.2.2 SAM G2 9
2.3 Installation PRE 1 / PRE 1 G2 10
2.4 Installation PRE 1 G3 12
2.5 Installation DNP 14
2.6 Installation MAP 15

3 Connecting the analog drive 16

4 Setup 17
4.1 Jumper settings 18
4.2 MM pickup systems 19
4.3 MC pickup systems 19
4.4 Typical setups 19
4.5 Fine tuning 20
4.6 Factory defaults 21

5 Deinstallation 22
5.1 Deinstallation MAP 1 / MAP V2 22
5.2 Deinstallation SAM V2 / SAM G2 23
5.3 Deinstallation PRE 1 / PRE 1 G2 23
5.4 Deinstallation PRE 1 G3 23
5.5 Deinstallation DNP 24
5.6 Deinstallation MAP 24

6 Security advice 25

7 Technical data 26

1 Preface

The Audionet Team congratulates you on your purchase of the Audionet Phonomodule.

The module allows you to connect your analog drive ('turntable') to connect directly to your Audionet system without the need of an external phono pre amplifier.

Despite its compact dimensions, the Phonomodule is very flexible to adjust to many different pickup systems. The variaty of impedance and gain settings makes it possible to connect almost any MC or MM pickup. Electrically and tonally optimized for you Audionet system, the Phonomodule reproduces your records with exciting performance.

But before you start listening to your new Audionet Phonomodule, please read this manual carefully so you are able to use and enjoy all functions of this unit without drawback on music quality.

Note

- The identifiers MAP 1, SAM, PRE 1 and MAP within this manual represent all versions/generations of the corresponding Audionet units unless explicitly excluded.

1.1 Included

Audionet delivers the Phonomodule to end customers only installed into an Audionet pre or integrated amplifier (host unit) ready for use.

Tipp

- While ordering the Phonomodule, let your Audionet dealer know which pickup system you use. For an optimized adjustment the output voltage of the pickup and the manufacturer recommended values for input resistance and capacitance are necessary to know. Your Phonomodule will be configured to these values ready to use.

If the Phonomodule is delivered to authorised and qualified personal, an assembly kit for mounting the module in the host unit is included.

1.2 Transport

Important

- Please mind the notes about transportation of the host unit the Phonomodule is installed in.
- Please transport a separate Phonomodule only in the included package to prevent damage to the module.

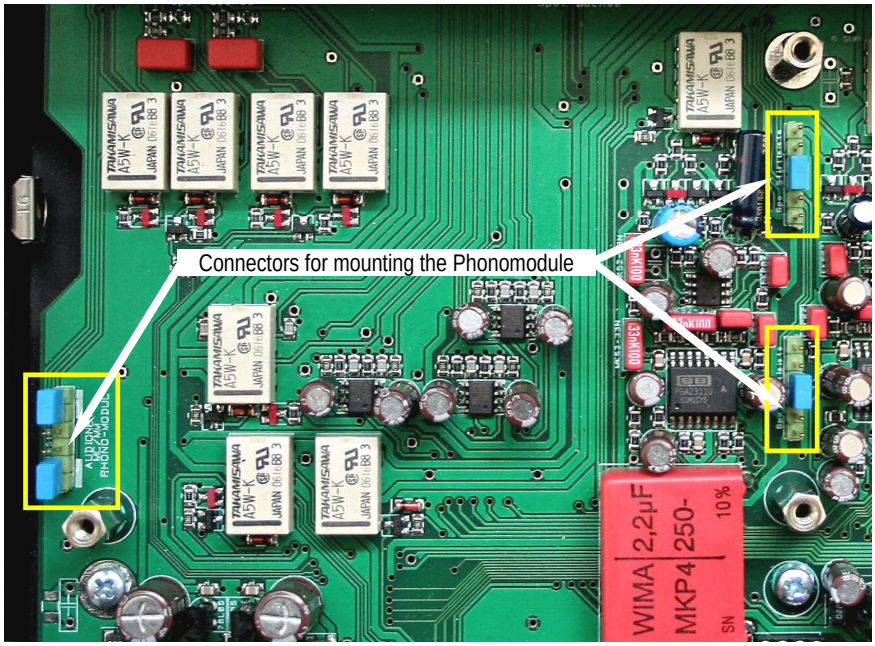
2 Installation

Important

- **The installation of the Phonomodule into an Audionet unit (host unit) is restricted to authorised personal only!**
- **Unauthorised opening of an Audionet unit avoids the warranty!**
- **Always disconnect any host unit from mains and pull the mains cord prior to opening.**
- Ease the installation by disconnecting all cables to the host unit.
- Use only high quality tools to avoid damage to the host unit. In particular use a rugged allen key made of tempered steel to remove the screws in the top cover. Otherwise you risk damage.
- Please read the complete installation manual first so you are familiar with all steps of the installation process.

2.1 Installation MAP 1 / MAP V2

Remove all screws of the top cover. Open the MAP 1 / MAP V2 by lifting up the cover. Put the unit in front of you with the front panel facing towards you. Use picture below to locate the 3 connectors for mounting the Phonomodule at the rear left side of the main board.



Remove all 4 jumpers on the 3 connectors. Push the Phonomodule with its 3 jacks on its bottom side onto the 3 connectors of the MAP 1 /

MAP V2 main board until the module sits tight on the mounting bolts. The alignment of the connectors determine the orientation of the Phono-module.

Important

- **Please make sure that the Phonomodule is aligned correctly on the pins of the connectors of the main board of the MAP 1 / MAP V2. Double check it before you switch on the unit!**
- **An incorrectly installed Phonomodule might cause damage to itself and/or the MAP 1 / MAP V2!**

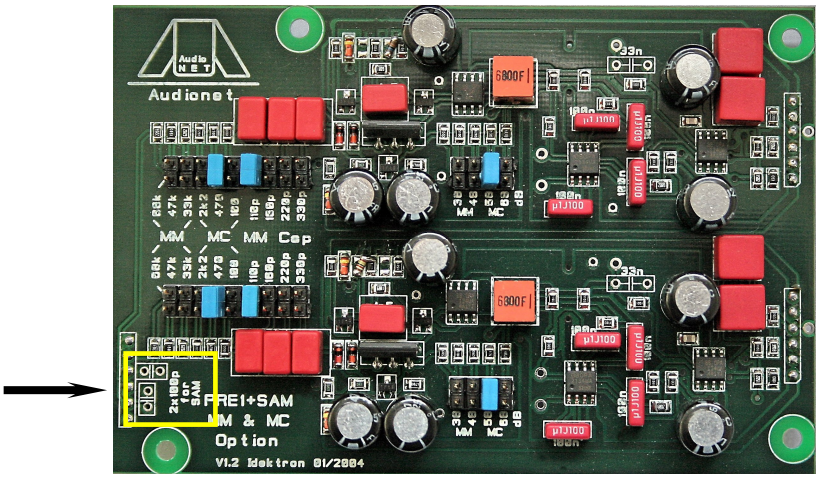
Fix the Phonomodule with 3 screws (M3 x 6 mm) now. In case you setup the input impedance and the gain of the module correctly for the pickup, you may re-assemble the top cover now.

If some fine tuning is still necessary to adjust the module to the pickup then leave the unit open.

2.2 Installation SAM V2 / SAM G2

Important

- Before you install the Phonomodule into a SAM V2 / SAM G2, please check if two 100 pF capacitors are installed in the place marked in the following picture:



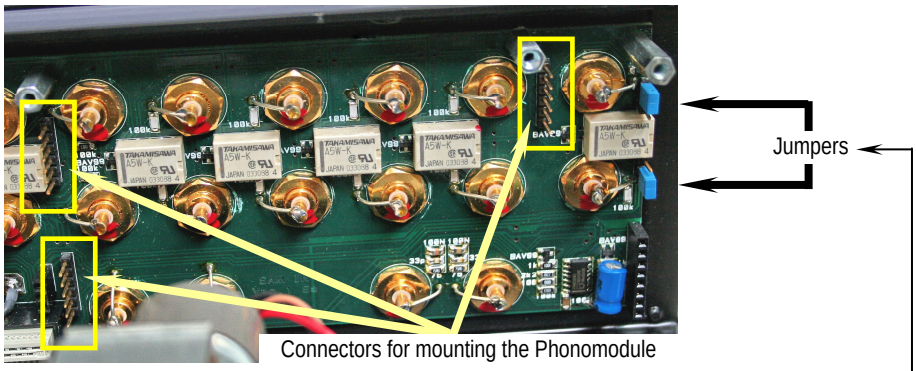
(2x100p for SAM is printed on the PCB right beside the capacitors)

- If both capacitors are missing, as in the picture above, please contact the Audionet Service Center.
- If you want to install a Phonomodule originating from a SAM V2 / SAM G2 into a different type of Audionet unit, please make sure to remove the capacitors mentioned above prior to installing!

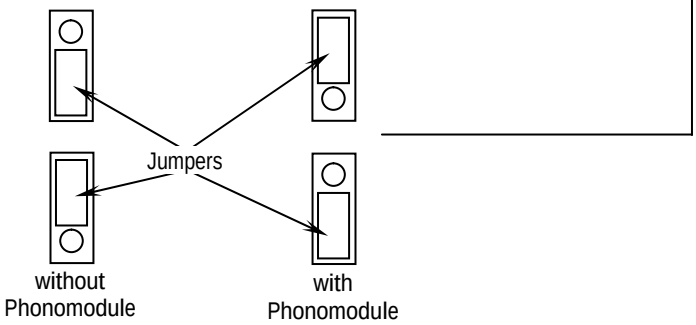
First remove the 3 screws in the lower row of each side panel. Then remove the 3 screws of the top cover right beside the front panel and 3 screws right beside the back panel. After removing the screw in the middle of the ventilation slots you can lift up the cover of the SAM V2 / SAM G2.Place the unit in front of you with the front panel facing towards you. On the right side of the back panel you can see a board with all the input relays and input jacks.

2.2.1 SAM V2

Use the following picture to locate both jumpers. They are on the right edge of the input board:



The following picture shows the correct jumper positions:



Push the Phonomodule with its 3 jacks on the bottom side onto the 3 connectors on the input board marked in the picture above until the module sits tight on the mounting bolts. The orientation of the module is determined by the alignment of the connectors.

2.2.2 SAM G2

Please locate the three phono module connectors on the input board of your SAM G2 like shown in the above chapter „SAM V2“. On these three connectors you'll find some blue jumpers which have to be removed before inserting the phono module.
Push the Phonomodule with its three jacks on the bottom side onto the three connectors on the input board marked in the picture above until the module sits tight on the mounting bolts. The orientation of the module is determined by the alignment of the connectors.

Important

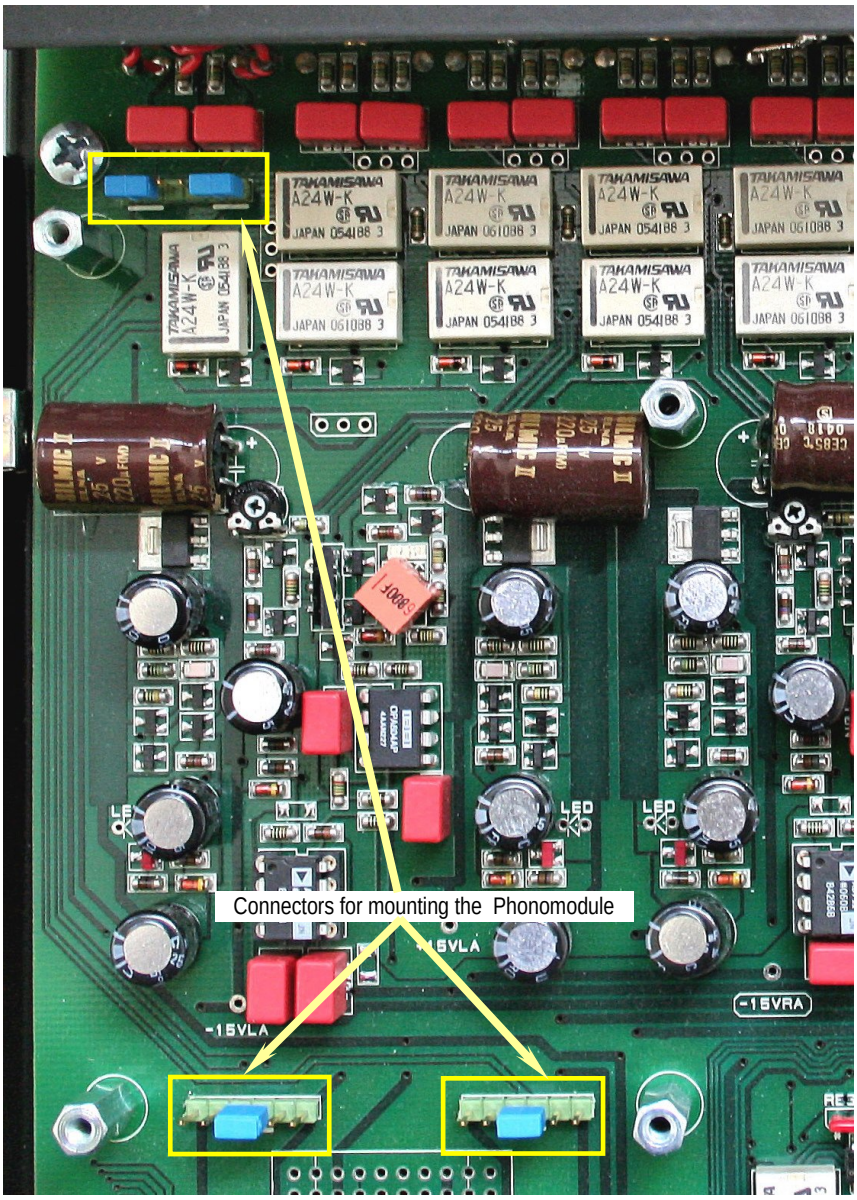
- **Please make sure the Phonomodule is aligned correctly on the pins of the connectors of the input board of the SAM V2 / SAM G2. Double check it before you switch on the unit.**
- **An incorrectly installed Phonomodule might cause damage to itself and/or the SAM V2 / SAM G2!**

Fix the Phonomodule with 2 screws (M3 x 6 mm) now. In case you setup the input impedance and the gain of the module correctly for the pickup, you may re-assemble the top cover now.

If some fine tuning is still necessary to adjust the module to the pickup then leave the unit open.

2.3 Installation PRE 1 / PRE 1 G2

Remove all screws of the top cover, and open the PRE 1 / PRE 1 G2 by lifting up the cover. Place the unit in front of you with the front panel facing towards you. Use picture below to locate the 3 connectors for mounting the Phonomodule at the rear left side of the main board.



Remove all 4 jumpers on the 3 connectors. Push the Phonomodule with its 3 jacks on the bottom side onto the 3 connectors until the module sits tight on the mounting bolts. The orientation of the module is determined by the alignment of the connectors.

Important

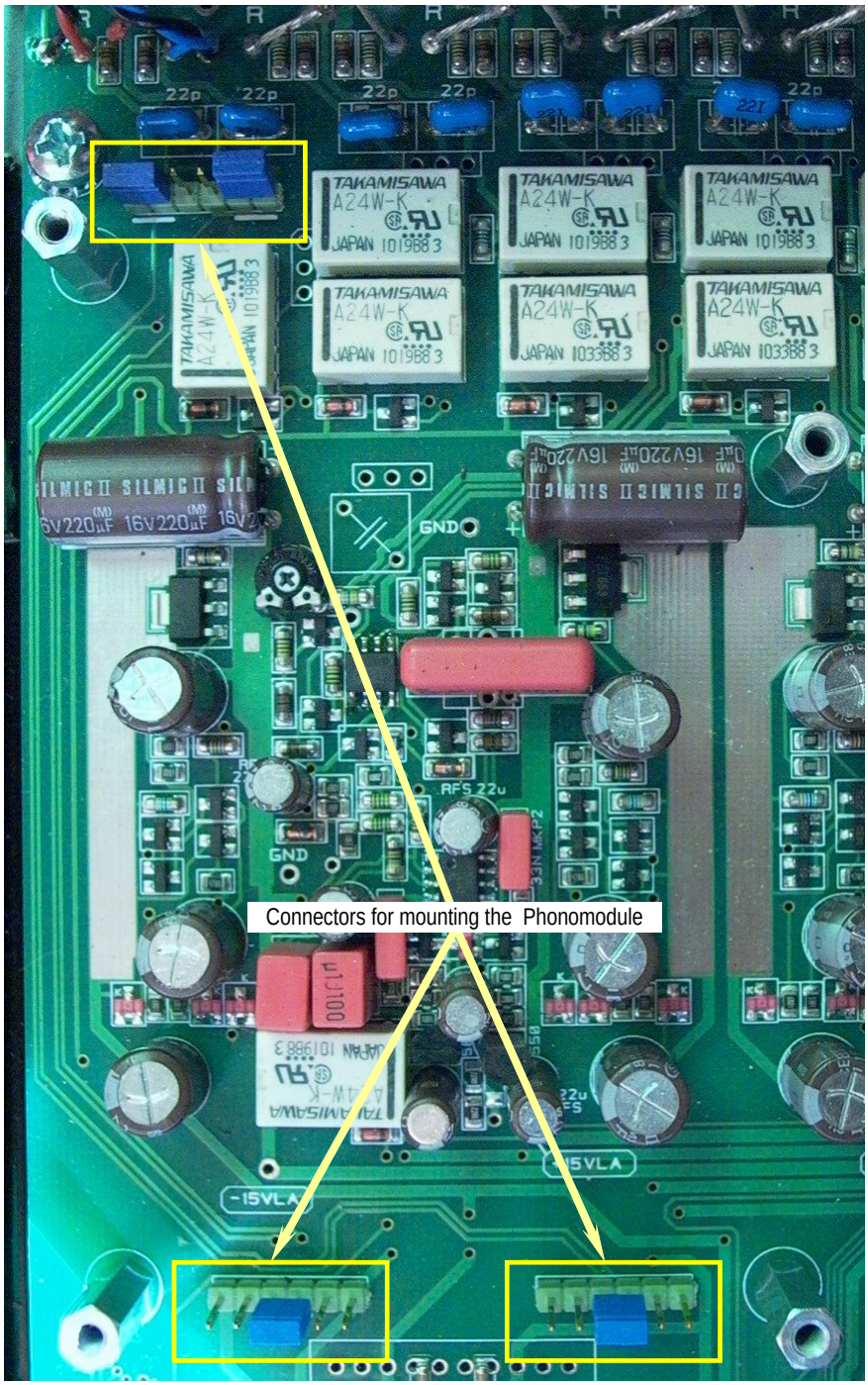
- **Please make sure the Phonomodule is aligned correctly on the pins of the connectors of the main board of the PRE 1 / PRE 1 G2. Double check it before you switch on the unit.**
- **An incorrectly installed Phonomodule might cause damage to itself and/or the PRE 1 / PRE 1 G2!**

Fix the Phonomodule with 4 screws (M3 x 6 mm) now. In case you setup the input impedance and the gain of the module correctly for the pickup, you may re-assemble the top cover now.

If some fine tuning is still necessary to adjust the module to the pickup then leave the unit open.

2.4 Installation PRE 1 G3

Remove all screws of the top cover, and open the PRE 1 G3 by lifting up the cover. Place the unit in front of you with the front panel facing towards you. Use picture below to locate the 3 connectors for mounting the Phonomodule at the rear left side of the main board.



Remove all 4 jumpers on the 3 connectors. Push the Phonomodule with its 3 jacks on the bottom side onto the 3 connectors until the module sits

tight on the mounting bolts. The orientation of the module is determined by the alignment of the connectors.

Important

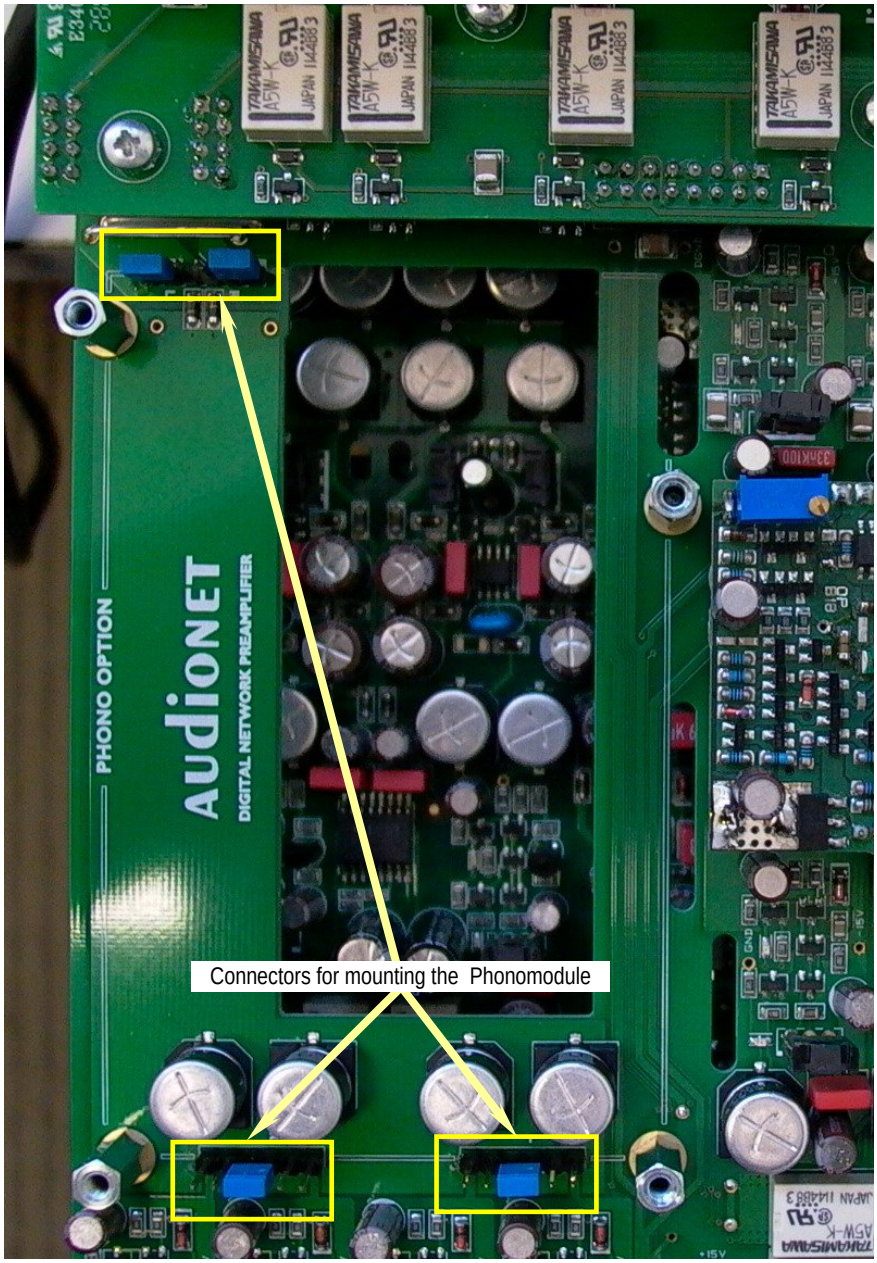
- **Please make sure the Phonomodule is aligned correctly on the pins of the connectors of the main board of the PRE 1 G3. Double check it before you switch on the unit.**
- **An incorrectly installed Phonomodule might cause damage to itself and/or the PRE 1 G3!**

Fix the Phonomodule with 4 screws (M3 x 6 mm) now. In case you setup the input impedance and the gain of the module correctly for the pickup, you may re-assemble the top cover now.

If some fine tuning is still necessary to adjust the module to the pickup then leave the unit open.

2.5 Installation DNP

Remove all screws of the top cover, and open the DNP by lifting up the cover. Place the unit in front of you with the front panel facing towards you. Use picture below to locate the 3 connectors for mounting the Phonomodule at the rear left side of the main board.



Remove all 4 jumpers on the 3 connectors. Push the Phonomodule with its 3 jacks on the bottom side onto the 3 connectors until the module sits tight on the mounting bolts. The orientation of the module is determined by the alignment of the connectors.

Important

- **Please make sure the Phonomodule is aligned correctly on the pins of the connectors of the main board of the DNP. Double check it before you switch on the unit.**
- **An incorrectly installed Phonomodule might cause damage to itself and/or the DNP!**

Fix the Phonomodule with 4 screws (M3 x 6 mm) now. In case you setup the input impedance and the gain of the module correctly for the pickup, you may re-assemble the top cover now.

If some fine tuning is still necessary to adjust the module to the pickup then leave the unit open.

2.6 Installation MAP

Important

- **The installation of a Phonomodule into the MAP is done by the Audionet Service Center only!**

3 Connecting the analog drive

Connect the outputs Left/Right of your analog drive ('turntable') to the phono input of your Audionet host unit. Refer to the following table to find out which input of your host unit is now the dedicated phono input after installing the Phonomodule:

Host unit	Phono input
MAP 1	Input 2
MAP V2	Input 6
MAP	Input 6
SAM G2	Input 6
SAM V2	Input 1
PRE 1	Input 7
PRE 1 G2	Input 6
PRE 1 G3	Input 6
DNP	Input 5

In most cases an additional grounding of the analog drive is necessary to avoid humming. The connector for this ground connection is labelled 'GND' and located for most parts close to the phono input. Please consult the user's manual of your Audionet host unit.

Note

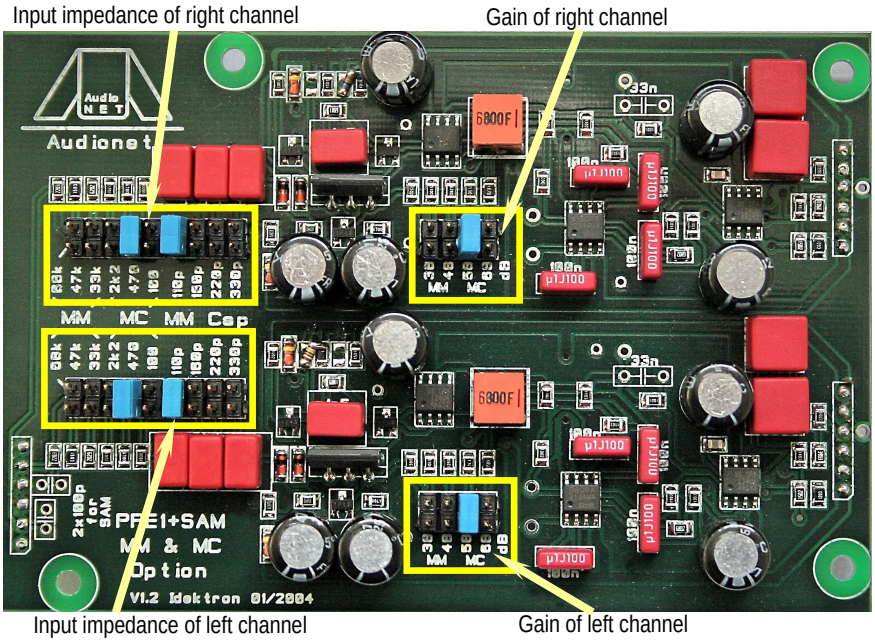
- Never use force or tools to tighten the ground connection!
- After installing the Phonomodule the corresponding input of your host unit is **only** suitable for playback of signals from an analog drive ('turn table'). Do not connect any line level units to the phono input!

4 Setup

Please make sure which type of pickup unit you have and which input impedance and gain is recommended by the manufacturer. You need this information to adjust the Phonomodule correctly to the pickup. In case of doubt treat the pickup as 'MM' system and use the standard settings listed below.

Section '*Fine tuning*' on page 20 offers more detailed information on further adjustments.

The following picture shows the configuration elements of the Phonomodule:



For each channel several jumper fields are available for setting up input impedance and gain.

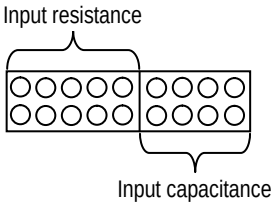
Important

- Always select the same settings for input impedance and gain on both channels!

4.1 Jumper settings

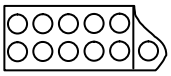
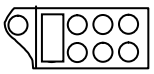
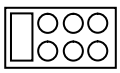
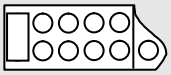
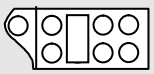
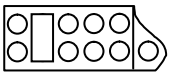
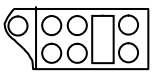
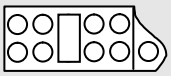
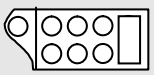
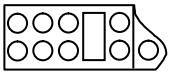
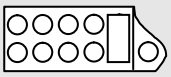
The jumper fields in center of the module determine the gain. Please refer to the table below to find the jumper setting for the desired gain. Additionally, the gain is printed on the module right beside the jumper position.

The jumper field for selecting the input impedance is divided into two separate areas. The first 5 jumper positions (counted from the left) are for selecting the input resistance, the remaining 4 positions determine the input capacitance.



Again, the values are printed on the module right beside the jumper positions. To setup 68 kΩ input resistance please remove the corresponding jumper.

The following table lists all possible position and the corresponding values:

Input resistance	Input capacitance	Gain
 68 kΩ	 110 pF	 38 dB
 47 kΩ	 160 pF	48 dB
 33 kΩ	 220 pF	58 dB
 2,2 kΩ	 330 pF	68 dB
 470 Ω		
 100 Ω		

4.2 MM pickup systems

For MM pickup systems set the gain to 38 dB, i.e. put the jumper in the left position (labelled '38' on the Phonomodule, also see table above). For the settings of input resistance and capacitance please refer to the recommendations of the manufacturer of your pickup.

In case you have no recommendations from the manufacturer for input resistance and capacitance, set the jumpers to position 47 kΩ and 220 pF. These settings offer suitable conditions for most MM pickup systems.

4.3 MC pickup systems

MC pickup systems cover a great range of different output levels. To achieve an output matching the level of your other sources, the Audionet Phonomodule offers 3 gain settings:

For pickups with a 'normal' output level (approx. 1...2 mV output voltage) set the 'gain' jumper to position 58 dB. For high output pickups (3...5 mV) position 48 dB is better suited. In case you have a low output pickup (<0.8 mV) set the gain to 68 dB. In case of doubt assume your pickup working at a 'normal' output level.

For MC pickup systems the jumper for the input capacitance should be set to 110 pF. Select the input resistance recommended by the manufacturer or, if the information is not available, select position 100 Ω.

4.4 Typical setups

The following table outlines typical setups for miscellaneous pickup systems:

System	Output voltage	Gain	Input resistance	Input capacitance
Low Output MC	< 0,6 mV	68 dB	100 Ω	110 pF
MC High Output MC	~ 1...2 mV ~ 3...5 mV	58 dB 48 dB	100...470 Ω	110 pF
MM	~ 4...6 mV	48 dB	47...68 kΩ	160...220 pF
High Output MM	> 6 mV	38 dB	47...68 kΩ	160...220 pF

Important

- **For optimum adjustment to your pickup follow the recommendations of the manufacturer!** If necessary ask your dealer.

4.5 Fine tuning

After your first experiences with your new Phonomodule some fine tuning might be possible to further improve the system.

Important

- **Unauthorised opening of an Audionet unit (host units) voids warranty!**
- **Disconnect the host unit from mains and pull the mains cord before opening the mains unit.**
- **Switch off the host unit prior to changing the configuration of the Phonomodule (= set jumper to a different position)! Otherwise your host unit, speakers and/or amplifiers could suffer damage!**

To increase or decrease the output level of the Phonomodule use the jumper field in the center of the module. The numbers 38...68 printed besides the jumper field represent the gain in dB.

Important

- Excessive gain could lead to overdrive and distortion!

Set the gain so that the output voltage of the Phonomodule U_{modul} is approx. 1...1.5 V. With a given pickup voltage U_{pickup} the gain calculates to: $\frac{U_{modul}}{U_{pickup}} = gain$.

Refer to the following table to get the gain in dB from the calculated gain factor in order to setup the jumper:

Gain in dB	38	48	58	68
Gain factor	80	250	800	2500

Example:

Output voltage: U_{modul} = 1.2 V

Pickup voltage: U_{pickup} = 1.5 mV

Gain: $\frac{1.2V}{1.5mV} = 800$ $\Rightarrow$ set Phonomodule to 58 dB

If you are using a MM pickup system, adjust the high frequency range: Increase the input resistance (e.g. from 47 kΩ to 68 kΩ) to boost the high frequency range. Decrease the input resistance (e.g. from 47 kΩ to 33 kΩ) attenuates the high frequencies.

While selecting the input capacitance please keep in mind the capacitance of the connection cable from the analog drive to the host unit (approx. 100 pF per meter of length). Exceeding capacitances most probably lead to presence boost and high frequency attenuation.

As described above, the input capacitance is extraneous for MC pickup systems. Some systems call for a higher input resistance (2,2 kΩ), others need a much lower setting (100 Ω) for optimum performance. Please follow the recommendations of the manufacturer of the pickup.

4.6 Factory defaults

If delivered separately the Audionet Phonomodule is set to the following factory default configuration:

Gain	58 dB
Input resistance	470 Ω
Input capacitance	110 pF

This configuration is suitable for most MC pickup systems.

5 Deinstallation

Important

- **The de-installation of a Phonomodule off an Audionet unit (host unit) is restricted to authorised personal only!**
- **Unauthorised opening of an Audionet unit voids warranty!**
- **Disconnect the host unit from mains and pull the mains cord prior to opening.**
- Ease the installation by disconnecting all cables to the host unit.
- Use only high quality tools to avoid damage to the host unit. In particular use a rugged allen key made of tempered steel to remove the screws in the top cover. Otherwise you risk damage.
- Please read the complete installation and de-installation manual first so you are familiar with all steps of the de-installation process.

5.1 Deinstallation MAP 1 / MAP V2

Open the unit as described in section *"Installation MAP 1 / MAP V2"* on page 6. First, remove the 3 screws fixing the Phonomodule. Then pull off the module. Finally, set all 4 jumpers onto the connectors of the main board. Refer to the pictures in section *"Installation MAP 1 / MAP V2"* on page 6. There you can see the correct position of the jumpers. Additionally, the main board has markings showing you which pins of the connectors to connect with jumpers.

Important

- If you do not set the 4 jumpers correctly, you cannot use input no. 2 of the MAP 1 or input no. 6 of the MAP V2!

5.2 Deinstallation SAM V2 / SAM G2

Open the unit as described in section *"Installation SAM V2 / SAM G2"* on page 7. First, remove both screws fixing the Phonomodule. Then pull off the module. Finally, set the jumpers on the right edge of the input board according to the picture in section *"Installation SAM V2 / SAM G2"* on page 7.

Important

- If you do not set both jumpers correctly, you cannot use input no. 1 of the SAM V2 or input no. 6 of the SAM G2!

5.3 Deinstallation PRE 1 / PRE 1 G2

Open the unit as described in section *"Installation PRE 1"* on page 10. First, remove the 4 screws fixing the Phonomodule. Then pull off the module. Finally, set the 4 jumpers on the connectors according to the picture in section *"Installation PRE 1"* on page 10. You can see the correct position of the jumpers in the picture. Additionally, the main board has markings showing you which pins of the connectors to connect with jumpers.

Important

- If you do not set the 4 jumpers correctly, you cannot use input no. 7 of the PRE 1 or input no. 6 of the PRE 1 G2!

5.4 Deinstallation PRE 1 G3

Open the unit as described in section *"Installation PRE 1 G3"* on page 12. First, remove the 4 screws fixing the Phonomodule. Then pull off the module. Finally, set the 4 jumpers on the connectors according to the picture in section *"Installation PRE 1 G3"* on page 12. You can see the correct position of the jumpers in the picture. Additionally, the main board has markings showing you which pins of the connectors to connect with jumpers.

Important

If you do not set the 4 jumpers correctly, you cannot use input no. 6 of the PRE 1 G3!

5.5 Deinstallation DNP

Open the unit as described in section *"Installation DNP"* on page 14. First, remove the 4 screws fixing the Phonomodule. Then pull off the module. Finally, set the 4 jumpers on the connectors according to the picture in section *"Installation DNP"* on page 14. You can see the correct position of the jumpers in the picture. Additionally, the main board has markings showing you which pins of the connectors to connect with jumpers.

Important

If you do not set the 4 jumpers correctly, you cannot use input no. 5 of the DNP!

5.6 Deinstallation MAP

Important

- **The de-installation of a Phonomodule off the MAP is done by the Audionet Service Center only!**

6 Security advice

Important

- Avoid packaging material, especially plastic bags, coming into children's hands!
- Store and operate host unit and Phonomodule in a dry room at a reasonable room temperature only!
- Avoid moisture, any liquids, dirt or small objects getting into the host unit or Phonomodule!
- Set up the host unit in a sufficiently ventilated environment!
- Do not cover the host unit!
- Do not open the host unit. Unauthorised opening will void warranty!
- Do not short-circuit the outputs!
- During connecting or removing the analog drive and/or changing the configuration of the Phonomodule the host unit has to be switched off to prevent damage to host unit, amplifier or other connected units.
- Use dry cloth for cleaning!
- Installation/de-installation of the Phonomodule is restricted to authorised personal only!

We would like to wish you many exciting listening experiences with your new Audionet product.

If you still have any questions, do not hesitate to ask your competent Audionet dealer or contact us directly.

7 Technical data

Function	Stereo phono pre amplifier for MM & MC pickup systems
Circuitry	Two stage active phono equalization according to RIAA
Frequency response	30 Hz – 100,000 Hz (± 0.18 dB)
Gain	38 dB, 48 dB, 58 dB or 68 dB (configurable by jumper)
Input resistance	100 Ω, 470 Ω, 2,2 kΩ, 33 kΩ, 47 kΩ or 68 kΩ (configurable by jumper)
Input capacitance	110 pF, 160 pF, 220 pF or 330 pF (configurable by jumper)
Subsonic filter	2-pole subsonic filter @ 15 Hz with dual servo, without any capacitor in the signal path
Noise	< -90 dBV (A weighted) @ 48 dB gain (MM) < -78 dBV (A weighted) @ 58 dB gain (MC)
Connection	Cinch (using Audionet host unit)
Realisation	Plug-in module for Audionet pre and integrated amplifiers (e.g. PRE1, SAM, MAP, MAP1)

Errors and omissions excepted. Specifications and design are subject to changes without prior notice.

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